CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 93-073

WASTE DISCHARGE REQUIREMENTS FOR:

SONOMA COUNTY DEPARTMENT OF PUBLIC WORKS
SANITATION DIVISION
SONOMA, SONOMA COUNTY

The California Regional Water Quality Board, San Francisco Bay Region (hereinafter the Board) finds that:

1. The Sonoma County Department of Public Works, Sanitation Division (hereinafter the Discharger) has submitted a Report of Waste Discharge dated April 20, 1993 for issuance of Waste Discharge Requirements for an onsite bioremediation project.

2. Petroleum contaminated soil (450 cubic yards), excavated during the removal of two underground storage tanks, are stockpiled on the Sonoma Valley County Sanitation District Treatment Plant property. The plant is located at 22675 8th Street East in the City of Sonoma, Sonoma County. Schell Creek is located adjacent to the treatment plant.

3. Results of soil sampling show TPH-D (Total Petroleum Hydrocarbons as Diesel) levels up to 600 ppm and the Discharger proposes on-site bioremediation for soil cleanup. Contaminated soil would be placed on a prepared treatment bed (50 x 230 feet). The soil pile would be bermed to prevent soil migration from precipitation, drainage, or leachate. Water, nutrients, oxygen, and commercial strains of hydrocarbon degrading bacteria would be added to the soil pile. The treatment bed would be irrigated when necessary to maintain a 20% to 30% moisture level and tilled weekly with a rototiller.

4. Properly implemented, enhanced bioremediation of petroleum (or similar biodegradable substance) and/or aeration of contaminated soils containing various volatile constituents can be an effective means of reducing the volumes and levels of contamination in the soil, thereby reducing the amount of contaminated material that may require special handling or disposal.

5. The Board adopted a revised Water Quality Control Plan (Basin Plan) on September 16, 1992. The Basin Plan identifies beneficial uses and water quality objectives for San Pablo Bay, Schell Creek , and contiguous surface and ground water.

6. The existing and potential beneficial uses of San Pablo Bay, Schell Creek , and contiguous surface water include:

    a. Contact and non-contact water recreation
    b. Wildlife habitat
    c. Preservation of rare and endangered species
    d. Estuarine habitat
    e. Fish spawning and migration
    f. Industrial process and service supply
    g. Shellfishing
    h. Navigation
    i. Ocean commercial and sport fishing

7. The existing and potential beneficial uses of groundwater in the area include:

    a. Municipal and domestic supply
    b. Industrial process supply
    c. Industrial service supply
    d. Agricultural supply

8. This Order is an action by a regulatory agency for the protection of the environment. It is therefore exempt from the provisions of the California Environmental Quality Act pursuant to Section 15308, Title 14 of the California Code of Regulations.

9. The Discharger and interested agencies and persons have been notified of the Board's intent to prescribe Waste Discharge Requirements for Sonoma County's bioremediation project, and have been provided an opportunity to submit their written views and recommendations.

10. The Board, in a public meeting, heard and considered all comments pertaining to the bioremediation project.

IT IS HEREBY ORDERED that the Discharger, its agents, successors, and assigns; in order to meet the provisions contained in Division 7 of the California Water Code and regulation adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder; shall comply with the following:

A. PROHIBITIONS

1. The storage, handling, treatment, or disposal of soil or groundwater containing pollutants shall not create a nuisance as defined by Section 13050 of the Water Code.

2. Activities associated with subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

3. The Discharger shall not cause the following conditions to exist in waters of the State:

    - Floating, suspended, or deposited microscopic particulate matter or foam;
    - Bottom deposits or aquatic growth;
    - Adversely alter turbidity, apparent color, or water levels beyond natural background levels;
    - Visible, floating, suspended or deposited oil or other products of petroleum origin; or
    - Toxic or other deleterious substances in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl; or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological accumulation.

B. SPECIFICATIONS

1. The Discharger shall ensure that the treatment site meets, at a minimum, the following criteria:

    - The soils to be treated shall be separated from underlying soils at the treatment site by a synthetic liner of at least 20 mil, or equivalent;
    - During treatment, the soils to be treated shall be covered with a synthetic liner of a least 10 mil thickness; and

- The treatment area shall be properly designed such that any precipitation, drainage, or leachate generated at the treatment site can be controlled.

2. Aerated and/or bioremediated soils which have been treated such that levels of petroleum hydrocarbons are at or below the following limits shall not be considered to contain significant pollution and may be used in any manner deemed suitable by the Discharger.

   Aerated and/or bioremediated soils which have been treated such that levels of petroleum hydrocarbons are above the following limits shall be disposed of in a manner approved by the Executive Officer unless the soils are manifested to a permitted landfill facility.

   The following detection levels for soil analyses shall apply:

• TPH gasoline	10	ppm
• TPH diesel	10	ppm
• BTEX	0.005	ppm
• Oil & Grease	50	ppm

3. Contaminated soil aeration and treatment activities shall have controlled public access.

4. Warning signs shall be posted near the bioremediation area. The signs shall state that bioremediation is in progress and the public should avoid contact.

5. All submittals of hyrogeological plans, specifications, reports, and documents (except progress and self-monitoring reports) shall be signed by and stamped with the seal of a registered geologist, registered engineering geologist, or registered professional engineer.

6. The Discharger shall submit a Final Completion Report at the end of the bioremediation project. The report shall:

   - describe the results of the bioremediation project;
   - provide sampling verification to show no pollution resulted from the bioremediation activities;
   - provide sampling verification for final contamination levels of treated soil; and
   - provide recommendations for final soil disposal.

C. PROVISIONS

1. The Discharger shall comply with all Prohibitions, Specifications, and Provisions of this Order immediately upon adoption of this Order.

2. The Discharger shall comply with the Self-Monitoring Program as adopted by the Board and as may be ammended by the Executive Officer.

3. All treatment and disposal facilities shall be in compliance with appropriate City and County requirements.

4. Provisions of this Order are severable. If any provisions of these requirements are found to be invalid, the remainder of these requirements shall not be affected.

5. The Discharger shall permit the Board or its authorized representative, in accordance to Section 13267 of the California Water Code:

   - Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any records are kept, which are relevant to this Order;
   - Access to copy any records required to be kept under the terms and conditions of this Order;
   - Inspection of any treatment equipment, monitoring equipment, or methodology implemented in response to this Order; and
   - Sampling of any groundwater, soil, or waste which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the Discharger.

I, Steven R. Ritchie, Executive Officer do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Board, San Francisco Bay Region on July 21, 1993.

STEVEN R. RITCHIE
EXECUTIVE OFFICER

Attachments:
A. Site Map
B. Self-Monitoring Program

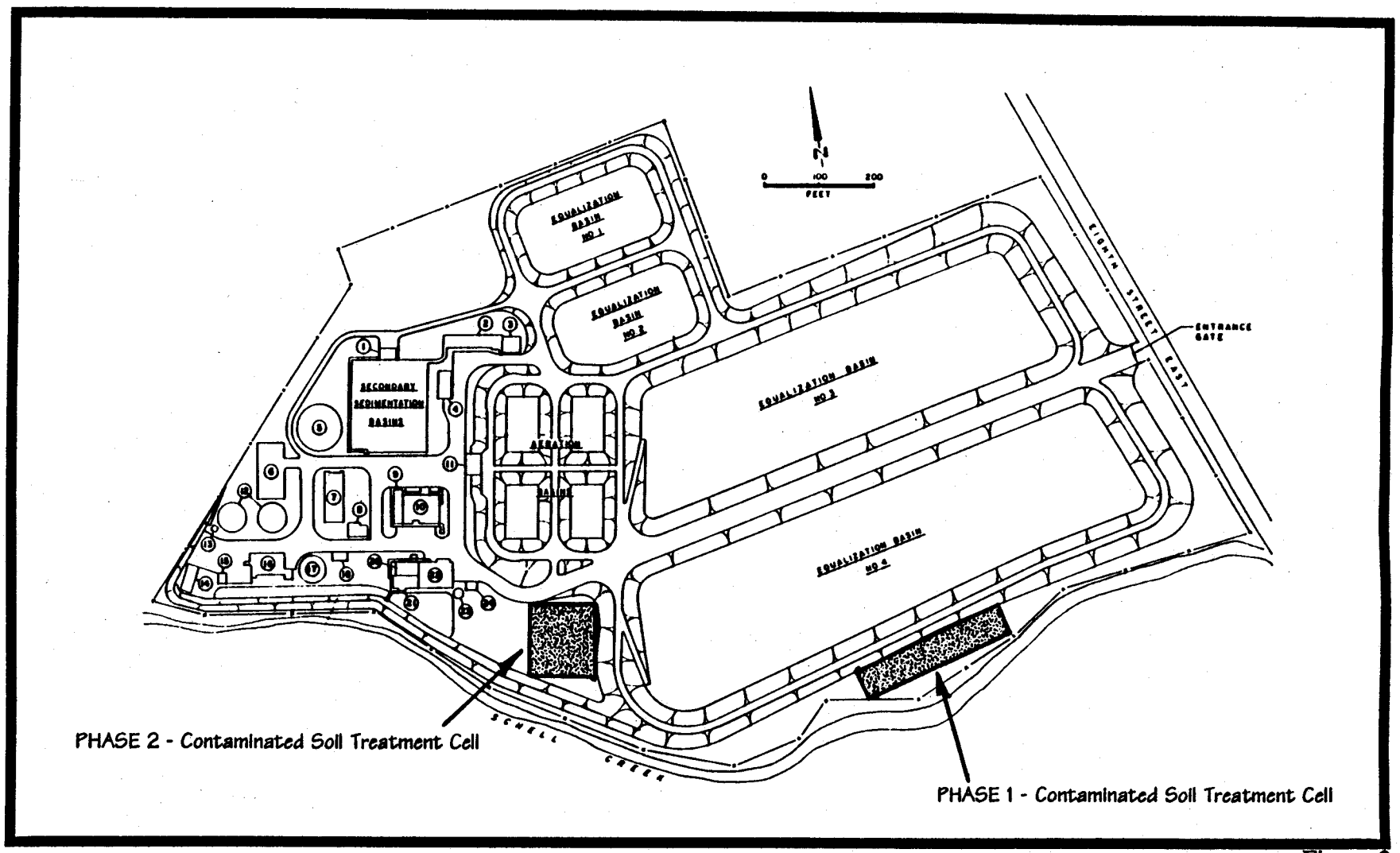

Figure 2

Sonoma Valley County Sanitation District
Treatment Plant

Bioremediation Project Site

Source: Sonoma County Department of Public Works, 1993. JDF

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

SONOMA COUNTY DEPARTMENT OF PUBLIC WORKS

SANITATION DEPARTMENT

ORDER NO. 93-073

SONOMA COUNTY DEPARTMENT OF PUBLIC WORKS BIOREMEDIATION

I. GENERAL

Reporting responsibilities of waste dischargers are specified in this Regional Board's Resolution No. 73-16 and in Section 13225(a), 13267, 13268, 13383, and 13387(b) of the California Water Code.

The principle purposes of a self-monitoring program by a waste discharger or operator of a bioremediation treatment unit are:

A. To document compliance with waste discharge requirements and prohibitions established by this Regional Board.

B. To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge or bioremediation of polluted soil.

II. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to Code of Federal Regulations Title 40, Section 136 (40 CFR S136), or other methods approved and specified by the Executive Officer of this Regional Board.

Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services (DOHS).

The Director of the laboratory whose name appears on the certification or his/her laboratory supervisor who is directly responsible for the analytical work performed shall supervise all analytical work including appropriate quality assurance/quality control procedures in his/her laboratory and shall sign all reports of such work to the Regional Board.

All monitoring instruments and equipment shall be calibrated and maintained to ensure accuracy of measurements.

III. STANDARD OBSERVATIONS

A. Bioremediation Treatment Unit Area

1. Evidence of wastewater escaping the bioremediation treatment unit area through surface runoff or underground seepage (show affected area on a sketch).

2. Nuisance odor from the bioremediation treatment unit or polluted soil storage area. If present, indicate apparent source, characterization, direction of travel, and any public use area or off-site facility affected.

3. Evidence of prolonged ponding of water or of wastewater on the bioremediation treatment unit or polluted soil storage area, or of mosquitoes breeding within the area of ponding.

4. Warning signs posted to inform the public not to enter the bioremediation treatment and polluted soil storage areas.

5. Proper coverage of polluted soils during treatment.

B. Overflows, Spillage, and Bypasses

1. Location of overflow or spill, description of surface water or land area affected, and description of impact (show on map or sketch of area).

2. Date and time when overflow started or spill occurred, and when overflow or bypass ceased.

3. Estimated total volume discharged (gallons) and duration of event.

4. Explanation of cause and corrective actions taken.

IV. DESCRIPTION OF SAMPLING AND OBSERVATION STATIONS

A sketch showing locations of all stations described below shall accompany the first monitoring report, and subsequent reports when locations are changed or a violation is reported.

A. Sampling Stations

Station	Description
L-1 thru L-6	Six equally spaced stations under the liner for the bioremediation treatment unit and within 18 inches of the soil surface.
L'-1 thru L'-6	Within two feet of each of the "L" stations and at the same depth.
V-1 thru V-"n"	At any location where there is visual evidence of a hole in the liner, or leak or overflow from the bioremediation treatment unit. A sufficient number of stations shall be established to characterize the extent of soil pollution resulting from any leak or overflow from the bioremediation treatment unit.
IS-1 thru IS-"n"	Representative locations in the polluted soil to be treated in the bioremediation treatment unit.
TS-1 thru TS-20	Twenty equally spaced stations of the treated soil in the bioremediation treatment unit.

B. Observation Stations

Station	Description
O-1 thru O-6	Located at the corners and mid-points along the longer sides of the bioremediation treatment unit.
S-1 thru S-"n"	Located at about 40-foot intervals around the perimeter of the polluted soil storage area.

V. SCHEDULE OF SAMPLING, OBSERVATIONS, AND ANALYSES

A. Sampling Stations

Station	Sampling Schedule
L-1 thru L-6	Samples shall be collected before the liner for the bioremediation treatment unit is placed. If pollution is found, the pollution shall be removed, clean soil brought in, and resampling and analyses completed to demonstrate that the area is clean.
L'-1 thru L'-6	Samples shall be collected after the bioremediation is completed and the liner is removed.
V-1 thru V-"n"	Samples shall be collected whenever a leak or overflow from the bioremediation treatment unit is observed. The liner shall be inspected for leaks when it is removed after bioremediation is complete.
IS-1 thru IS-"n"	One composite sample from each of the two halves of the surface of the bioremediation treatment unit shall be collected after the polluted soil is placed in the unit, but before bioremediation has begun.
TS-1 thru TS-20	Samples shall be collected after the bioremediation treatment is complete..

B. Observation Stations

Station	Observation Schedule
O-1 thru O-6	Standard Observations III-A and III-B shall be made at these stations and reports on the observations shall be completed every two weeks. Observations and reporting shall begin when polluted soil has been placed in the bioremediation treatment unit and cease when all the bioremediated soil has been removed.
S-1 thru S-"n"	Standard Observations III-A and III-B shall be made at these stations and reports on the observations shall be completed every two weeks from November 1 through April 30, and after each rain of one half inch or greater during the period of May 1 through October 31.

C. Analyses

Soil samples shall be analyzed for TPH-D (diesel) and BTEX (benzene, toluene, ethylebenzene, and xylene) using EPA Modified Analyses 8015 and 8020. The reporting limits shall be as follows:

• TPH-D	1.0	ppm
• BTEX	0.005	ppm

Samples from L-1 thru L-6 and IS-1 thru IS-6 shall be sampled for TPH-D and BTEX for the initial sampling event. IF BTEX is not detected, subsequent BTEX analyses will not be required.

VI. REPORTS TO BE FILED WITH THE REGIONAL BOARD

A. Self-Monitoring Reports

Written reports shall be filed regularly for each calendar month when polluted soil is being bioremediated in the treatment unit. Reports shall be submitted to this Regional Board's office no later than the fifteenth day of the following month, and shall include the following:

1. Letter of Transmittal

The letter of transmittal shall include the following:

- The Discharger's name, address, phone number, and contact person;
- The monitoring period being reported, by month and year;
- The name of the responsible Regional Board staff member;
- Discussion of requirement violations found during the monitoring period, including the causes of the violations and corrective actions taken or planned in order to prevent future violations (references to reports previously submitted describing corrective actions and/or implementation schedules are acceptable); and
- When applicable, discussion of any special or unusual events pertinent to maintaining compliance with waste discharge requirements, such as failure, repair, replacement or installation of major equipment, or significant operational changes or improvements.

The letter shall contain a statement by the Discharger, or the Discharger's authorized agent, under penalty of perjury, that to the best of the signer's knowledge the report is true, accurate, and correct.

2. Results of Analyses and Observations

a. Tabulations of the results from each required analyses and/or observations by date, time, type of sample or observation, and sample or observation station.

b. Tabulations of all water, nutrients, and bacteria added to the treatment unit including quantities and dates. Also describe the means of soil aeration used and include the durations and dates of aeration.

B. Report of Waste Discharge Requirement Violation

In the event the Discharger violates, or threatens to violate the conditions of the waste discharge requirements and prohibitions due to:

- maintenance work, power failure, or breakdown of wastewater transport or treatment equipment;
- accidents caused by human error or negligence; or
- other causes such as acts of nature;

the Discharger shall notify the Regional Board office by telephone as soon as the Discharger or the Discharger's agents have knowledge of the incident.

The Discharger shall submit a written report within two weeks of the noncompliance event, unless directed otherwise by Regional Board staff. The written report shall include pertinent information explaining reasons for the non-compliance and shall indicate what steps were taken to prevent the problem from recurring.

I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No 73-16 in order to obtain data and document compliance with the Waste Discharge Requirements established in Regional Board Order No. 93-073.

2. Is effective on the date shown below.

3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger, and if necessary, revisions will be ordered by the Executive Officer.

STEVEN R. RITCHIE
Executive Officer

Effective Date: July 21, 1993